

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Irvine

17461 Derian Ave

Suite 100

Irvine, CA 92614-5817

Tel: (949)261-1022

TestAmerica Job ID: 440-184108-1

Client Project/Site: BP Leviathan Mine RI/FS

For:

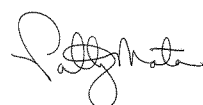
AMEC Foster Wheeler E & I, Inc

10940 White Rock Road

Suite 190

Rancho Cordova, California 95670

Attn: Marc Lombardi



Authorized for release by:

5/23/2017 4:29:14 PM

Patty Mata, Senior Project Manager

(949)261-1022

patty.mata@testamericainc.com

LINKS

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results through

TotalAccess

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 440-184108-1 | SWL05101701 | Water | 05/10/17 09:30 | 05/11/17 07:00 |

TestAmerica Irvine

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Case Narrative

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

Job ID: 440-184108-1

Laboratory: TestAmerica Irvine

Narrative

**Job Narrative
440-184108-1**

Comments

No additional comments.

Receipt

The sample was received on 5/11/2017 7:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 12.1° C.

Receipt Exceptions

The following sample was received at the laboratory outside the required temperature criteria of 0 - 6° C: SWL05101701 (440-184108-1). Sample and temperature blank were received on blue ice.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

Client Sample ID: SWL05101701

Lab Sample ID: 440-184108-1

Date Collected: 05/10/17 09:30

Matrix: Water

Date Received: 05/11/17 07:00

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography) - Dissolved

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------------|--------|-----------|--------|---------|------|---|----------|----------------|---------|
| Chromium, hexavalent | 0.018 | | 0.0010 | 0.00025 | mg/L | - | | 05/11/17 08:07 | 1 |

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Method Summary

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

| Method | Method Description | Protocol | Laboratory |
|--------|---|----------|------------|
| 218.6 | Chromium, Hexavalent (Ion Chromatography) | EPA | TAL IRV |

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TestAmerica Irvine

ED_001709_00001439-00006

Lab Chronicle

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

Client Sample ID: SWL05101701
Date Collected: 05/10/17 09:30
Date Received: 05/11/17 07:00

Lab Sample ID: 440-184108-1
Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Dissolved | Analysis | 218.6 | | 1 | | | 405456 | 05/11/17 08:07 | MN | TAL IRV |

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 440-405456/4
Matrix: Water
Analysis Batch: 405456

Client Sample ID: Method Blank
Prep Type: Total/NA

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|----------------------|--------------|-----------------|--------|---------|------|---|----------|----------------|---------|
| Chromium, hexavalent | ND | | 0.0010 | 0.00025 | mg/L | | | 05/11/17 06:46 | 1 |

Lab Sample ID: LCS 440-405456/3
Matrix: Water
Analysis Batch: 405456

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|----------------------|----------------|---------------|------------------|------|---|------|-----------------|
| Chromium, hexavalent | 0.0500 | 0.0489 | | mg/L | | 98 | 90 - 110 |

Lab Sample ID: MRL 440-405456/5
Matrix: Water
Analysis Batch: 405456

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

| Analyte | Spike Added | MRL Result | MRL Qualifier | Unit | D | %Rec | %Rec. Limits |
|----------------------|----------------|---------------|------------------|------|---|------|-----------------|
| Chromium, hexavalent | 1.00 | 0.901 | J | ug/L | | 90 | 50 - 150 |

Lab Sample ID: 440-184111-A-1 MS
Matrix: Water
Analysis Batch: 405456

Client Sample ID: Matrix Spike
Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|----------------------|------------------|---------------------|----------------|--------------|-----------------|------|---|------|-----------------|
| Chromium, hexavalent | ND | | 0.0500 | 0.0497 | | mg/L | | 99 | 90 - 110 |

Lab Sample ID: 440-184111-A-1 MSD
Matrix: Water
Analysis Batch: 405456

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|----------------------|------------------|---------------------|----------------|---------------|------------------|------|---|------|-----------------|-----|--------------|
| Chromium, hexavalent | ND | | 0.0500 | 0.0494 | | mg/L | | 99 | 90 - 110 | 1 | 10 |

QC Association Summary

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

HPLC/IC

Analysis Batch: 405456

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|--------------------|------------------------|-----------|--------|--------|------------|
| 440-184108-1 | SWL05101701 | Dissolved | Water | 218.6 | |
| MB 440-405456/4 | Method Blank | Total/NA | Water | 218.6 | |
| LCS 440-405456/3 | Lab Control Sample | Total/NA | Water | 218.6 | |
| MRL 440-405456/5 | Lab Control Sample | Total/NA | Water | 218.6 | |
| 440-184111-A-1 MS | Matrix Spike | Total/NA | Water | 218.6 | |
| 440-184111-A-1 MSD | Matrix Spike Duplicate | Total/NA | Water | 218.6 | |

Definitions/Glossary

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

Qualifiers

HPLC/IC

| Qualifier | Qualifier Description |
|-----------|--|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| α | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

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Accreditation/Certification Summary

Client: AMEC Foster Wheeler E & I, Inc
Project/Site: BP Leviathan Mine RI/FS

TestAmerica Job ID: 440-184108-1

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority | Program | EPA Region | Identification Number | Expiration Date |
|--------------------------|-----------------------------|------------|-----------------------|-----------------|
| Alaska | State Program | 10 | CA01531 | 06-30-17 |
| Arizona | State Program | 9 | AZ0671 | 10-14-17 |
| California | LA Cty Sanitation Districts | 9 | 10256 | 06-30-18 |
| California | State Program | 9 | CA ELAP 2706 | 06-30-18 |
| Guam | State Program | 9 | Cert. No. 17-003R | 01-23-18 |
| Hawaii | State Program | 9 | N/A | 01-29-18 |
| Kansas | NELAP Secondary AB | 7 | E-10420 | 07-31-17 |
| Nevada | State Program | 9 | CA015312017-1 | 07-31-17 |
| New Mexico | State Program | 6 | N/A | 01-29-17 * |
| Northern Mariana Islands | State Program | 9 | MP0002 | 01-29-17 * |
| Oregon | NELAP | 10 | 4028 | 01-29-18 |
| USDA | Federal | | P330-15-00184 | 07-08-18 |
| Washington | State Program | 10 | C900 | 09-03-17 |

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Irvine

ED_001709_00001439-00011

Mata, Patty

From: Lombardi, Lynda <Lynda.Lombardi@amecfw.com>
Sent: Thursday, May 11, 2017 4:12 PM
To: Mata, Patty
Subject: FW: Sample Received Out of Temp: 440-184108
Attachments: COC 440-184108 (201705110755)(1).pdf

Importance: High

Patty-

Please proceed with the analysis as requested. Also, please copy me on any issues related to sample QC issues in the future.

Best Regards,

Lynda Lombardi

Environment & Infrastructure Americas, Amec FosterWheeler
10940 White Rock Road, Suite 190, Rancho Cordova, California 95670
+1 916 636 3200 x109
lynda.lombardi@amecfw.com amecfw.com



From: Lombardi, Marc
Sent: Thursday, May 11, 2017 10:13 AM
To: Lombardi, Lynda <Lynda.Lombardi@amecfw.com>
Cc: Jones, Britt <Britt.Jones@amecfw.com>
Subject: FW: Sample Received Out of Temp: 440-184108
Importance: High

FYI – email from TestAmerica about sample shipment receipt. Looks like arrived warm - thawed blue ice.

Britt – please talk to the field crews about making sure that they are packing the coolers with sufficient ice to keep them cool.

Thanks,
Marc

Marc R. Lombardi, CEM, PG

Principal Geologist / Office Manager, Environment & Infrastructure Americas, Amec Foster Wheeler
10940 White Rock Road, Suite 190, Rancho Cordova, CA 95670, USA
D (916) 853-8903 M (916) 302-6326
marc.lombardi@amecfw.com amecfw.com



From: Tran, Dennis Lam [<mailto:Dennis.Tran@testamericainc.com>]
Sent: Thursday, May 11, 2017 10:09 AM
To: Lombardi, Marc <Marc.Lombardi@amecfw.com>
Cc: Mata, Patty <Patty.Mata@testamericainc.com>
Subject: Sample Received Out of Temp: 440-184108

Hello,

Attached is the COC received 5/11/17. The cooler was received with thawed blue ice and the temperature is recorded to be 12.1 degrees C. Unless otherwise notified, the laboratory will proceed with analysis.

SHIPPING ALERT: Memorial Day, Monday May 29th 2017

For the upcoming Memorial Day holiday (observed Monday, May 29th) FedEx and UPS will not have scheduled service on Monday May 29th.

If you have BOD samples or any short hold samples arriving Friday May 26th or on the weekend, we ask that you contact your Project Manager in advance to ensure your samples meet all holding time criteria.

We are thankful for your business and hope that you have a wonderful and safe holiday!

Thank you,

DENNIS TRAN
Project Management Assistant

TESTAMERICA
THE LEADER IN ENVIRONMENTAL TESTING

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Login Sample Receipt Checklist

Client: AMEC Foster Wheeler E & I, Inc

Job Number: 440-184108-1

Login Number: 184108

List Source: TestAmerica Irvine

List Number: 1

Creator: Avila, Stephanie 1

| Question | Answer | Comment |
|--|--------|---|
| Radioactivity wasn't checked or is \leq background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | Thawed Blue ice |
| Cooler Temperature is acceptable. | False | Cooler temperature outside required temperature criteria. |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | N/A | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |